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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/787,324

02/27/2004

Kevin Faulkner

6502.0571

4326

60667

7590

12/12/2006

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EXAMINER

ELLIS, KEVIN L

ART UNIT

PAPER NUMBER

2188

DATE MAILED: 12/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/787,324

Applicant(s)

FAULKNER ET AL.

Examiner

Kevin L. Ellis

Art Unit

2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,6,18,23 and 34-37 is/are rejected.
- 7) ☒ Claim(s) 2-5, 7-17, 19-22, and 24-33 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>5/27/04, 10/2/06, 11/2/06</u> . | 6) <input type="checkbox"/> Other: ____. |

Detailed Action

1. Claims 1-37 are presented for examination.
2. Information disclosed and listed on PTO 1449 has been considered.
3. Applicant should remove all references to attorney docket numbers, provide U.S. serial numbers, filing dates, and current status of all copending applications (see P 1).

Claim Rejections – 35 USC § 103

4. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 6, 18, 23, and 34-37 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Moore et al., U.S. Patent Application 2003/0200390.
 - A) As to claims 1, 18, and 34-37, Moore et al. discloses the invention substantially as claimed. Moore teaches a network switch system (SAN) that uses a graph structure to organize the storage devices into the two claimed "tiers" (see ¶ 6-9, 16, and 19). The first tier being the partitions of the virtual volume data (see Fig 1A 'Raid Volume 1' and 'Raid Volume 2') the second tier being the logical configuration of the virtual volume (see Fig 1A 'Virtual Volume'). As for the claimed storage processors that are assigned to the tiers and the coherency manager, while Moore et al. does not specifically disclose those details, it would have been obvious to one having ordinary skill in the art at the time of the invention that the system of Moore et al. would include storage processors and a

"virtualization coherency manager". The storage processors would be necessary to implement and control the RAID volumes shown in figure 1a and would also be necessary to implement and control the virtual volume. Since the system of Moore does create a logical tree structure there would be some processor that performs this task (a "master storage processor"). In order to create the tree structure the processors must know which storage devices are connected to which storage processors, thus there would be some processor that would perform this task (a "Virtualization Coherency Manager"). As for the claims directed to the computer readable medium storing instructions, Moore teaches this (§ 45)

- B) As to claims 6 and 23, the second tier objects (Fig 1a 'Virtual Volume') would include information referencing the first tier objects (see Fig 1a 'Raid Volume 1' & 'Raid Volume 2').

Allowable Claims

6. Claims 2-5, 7-17, 19-22, and 24-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin L. Ellis whose telephone number is 571-272-4205. The examiner can normally be reached on weekdays from 6:00AM-2:30PM.

Art Unit: 2188

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hyung Sough can be reached on 571-272-6799. The fax phone numbers for the organization where this application or proceeding is assigned is 571-272-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Kevin L. Ellis
Primary Examiner
December 7, 2006

A handwritten signature in cursive script, appearing to read "Kevin L. Ellis".